UNITED STATES PATENT AND TRADEMARK OFFICE

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10/749,945	12/30/2003	Hongyuan Chen	884A.0034.U1(US)	8614

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EXAMINER
ZHU, BO HUI ALVIN

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

		Application No.	Applicant(s)
		10/749,945	CHEN, HONGYUAN
Office Action Summary		Examiner	Art Unit	
		Bo Hui A. Zhu	2619	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 September 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-5,7-34 and 36</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5,7-34 and 36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   The amendment filed on September 28, 2007 has been entered.

Claims 1 – 5, 7 – 34 and 36 are pending.

Claims 1 – 5, 7 – 34 and 36 are rejected.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

A claim drawn to a "computer program" does not constitute statutory subject

matter such as a process, machine, article of manufacture or composition of matter. In

contrast, a claimed computer-readable medium encoded or embodied with a computer

program product of code, or instructions, is a computer element which, when executed

by a computer, defines structural and functional interrelationships between the

instructions and the computer to permit the instructions functionality to be realized, and

is thus statutory. Please see pages 30 and 53 of the Interim Guidelines for Examination

of Patent Applications for Patent Subject Matter Eligibility

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 1 – 5, 7 - 16, 19 – 20 and 22 – 34 and 36 are rejected under 35

U.S.C. 102(e) as being anticipated by Larsson et al. (US 6,751,200).

(1) with regard to claim 1 and 20:

Larsson et al. discloses a method and system, comprising: creating a direct radio

communications link between a first device in a first piconet of a scatternet (any node

shown in Fig. 2 can be a first device, for example, node M8 in piconet 9 of the scatternet

shown in Fig. 2; a piconet is a star-topology sub-network; and a scatternet is a

distributed low power radio frequency network) and a destination device in a second

piconet of the scatternet (any node shown in Fig. 2 that is in a piconet that is not

occupied by the first device can be the destination device, for example, a slave node in

piconet 7), wherein the direct radio communications link creates a short-circuit in the

network topology and transmitting a packet via the direct radio communications link (the

link created by piconet 8 that connects the two node as shown on Fig. 2 creates the

short-circuit).

(2) with regard to claim 2:

Larsson et al. further discloses the destination device is joined to the first piconet (205 is also a slave device of piconet 1).

(3) with regard to claims 3, 22, 31 and 33:

Larsson et al. discloses all of the subject matter as discussed in the rejection of claim 1 and further discloses creates a third piconet between the first piconet and the second piconet (column 5, lines 1 – 10; column 6, lines 16 – 20; in the case where the first device is node M8 of piconet 9, and the destination node is a slave of piconet 7, a direct link between the slave of piconet 9 and the slave of piconet 7 can be established by establishing a third piconet, piconet 8, as shown in Fig. 2 whilte the existing communication links within piconet 9 are maintained).

(4) with regard to claims 4 and 32:

Larsson et al. discloses that the first device operates as Master of the third piconet (M8 is the Master of the piconet 8 by default; column 7, lines 40 – 44).

(5) with regard to claims 5 and 34:

Larsson et al. discloses that the scatternet has a topology defined at initiation of the scatternet and creating the direct radio communications link adjusts the topology of the scatternet (a newly created piconet and the links created by the new piconet, will inevitably adjust the topology of the scatternet since a new piconet and new links will change the topology of the scatternet).

(6) with regard to claims 7 and 36:

Larsson et al. discloses a piconet is a star-topology low power radio frequency network comprising a Master as a central node and one or more Slaves as dependent

nodes, each of which has a radio communications link to the Master, and a scatternet is

a distributed low power radio frequency network comprising a plurality of piconets that

are interconnected by radio communication links (inherent to Bluetooth scatternet and

piconet; column 1, lines 25 – 63)

(7) with regard to claim 8:

Larsson et al. discloses the first device and/or the destination device are mobile

(column 1, lines 25 – 40).

(8) with regard to claim 9:

Larsson et al. further discloses determining whether the creation of a direct radio

communications link between the first device and the destination device is possible

(column 7, lines 21 - 25).

(9 with regard to claim 10:

Larsson et al. discloses the packet comprises an address of the destination

device (inherent because any packet destined to a destination must contain the address

information of the destination in order to know where to deliver the packet) and the step

of determining uses the identity of the destination device (column 7, lines 21 – 25;

because it has to determine if the destination can be reached at all, the identify of the

destination must be used).

(10) with regard to claim 11:

Larsson et al. further discloses determining if the destination device is within

radio communication range of the first device (column 2, lines 48 – 51; column 7, lines

26 – 30).

(11) with regard to claim 12:

Larsson et al. further discloses that the first device maintains a list of devices

within radio communication range (column 2, lines 65 – 68).

(12) with regard to claim 13:

Larsson et al. further discloses the list comprises, for each device within

communication range, an address and a clock offset (column 2, lines 65 – 68;

BD_ADDR is the address and the internal clock value is the clock offset).

(13) with regard to claim 14:

Larsson et al. further discloses that the list is maintained using the Bluetooth

Inquiry procedure (column 2, lines 45 – 68).

(14) with regard to claim 15:

Larsson et al. further discloses the first device determining whether the

destination device is included in the list (column 3, lines 3 – 6).

(15) with regard to claim 16:

Larsson et al. discloses that the comparison occurs within the Bluetooth Link

layer (the INQUIRY and PAGE procedures are inherently performed within the

Bluetooth Link layer).

(16) with regard to claim 19:

Larsson et al. further discloses that the packet is a routing request (ROUTE request

message, column 5, line 61).

(17) with regard to claims 23 and 29:

Larsson et al. discloses delivering a packet from a first device in a first piconet of

a scatternet (any node shown in Fig. 2 can be a first device, for example, M2; M2 is a

slave device in piconet 1 of the scatternet shown in Fig. 2) to a destination device in a

second piconet of the scatternet (any node shown in Fig. 2 that is in a piconet that is not

occupied by the first device can be the destination device, for example node 205; 205 is

a slave device in piconet 3) comprising: receiving the packet at the first device (column

5, line 44; a deivce in a piconet will receive and send data packets or routing packets

such as REQUEST/REPLY messages, column 4, lines 22 - 33); determining whether

the creation of a direct radio communications link between the first device and the

destination device that short-circuits the network topology is possible; and if it is not

possible, forwarding the packet within the scatternet (Fig. 7)

(19) with regard to claim 24

Larsson et al. discloses adding an address of the first device to the packet before

forwarding it (column 3, line 52; having IP over the Bluetooth link layer would require

Bluetooth devices to add their addresses to the packets they send).

(20) with regard to claim 25:

Larsson et al. discloses the received packet is transferred from a network layer to

a link layer (IP would be the network layer and the Bluetooth link layer would be the link

layer), if possible, the link layer creates a direct radio communications link with the

destination device and, if not possible, the link layer forwards the received packet (the

Bluetooth link layer will try to establish a direct link and if that's not possible, forward

packets over the existing piconets (Fig. 7).

(21) with regard to claim 26:

Larsson et al. discloses the received packet is buffered in a network layer

(column 8, lines 50 – 52; since IP is used over the Bluetooth link layer, the IP layer must

buffer the received packet) and a notification comprising the address of the destination

device is transferred to a link layer (route requests), if possible, the link layer creates a

direct radio communications link with the destination device (establish new piconet) and,

if not possible, replies to the network layer which transfers the received packet to the

link layer for forwarding (send packets through existing piconets).

(22) with regard to claims 27 and 30:

Larsson et al. further discloses if the creation of a direct radio communications

link between the first device and the destination device is possible, creating a direct

radio communications link between the first device and the destination device (720, 725

on Fig. 7).

(23) with regard to claim 28:

Larsson et al. discloses that if the creation of a direct radio communications link

between the first device and the destination device is possible, transmitting a reply

packet to a source of the received route request packet (REPLY message, column 4

lines 32 – 33).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson et al. (US 6,751,200) in view of Isumi (US 5,815,816).

(1) with regard to claims 17 and 18:

Larsson et al. discloses all of the subject matter as discussed above but fails to disclose that the direct radio communications link is temporary; and the direct radio communications link is released after a predetermined period of inactivity.

Isumi teaches that temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection (column 13, line 64 – column 14, line 3).

It would have been desirable to temporarily establishing a connection and releasing the connection after a predetermined period of inactivity in the connection because it would make system resource utilization more efficient. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the method as taught by Isumi in the system of Larsson et al.

8.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson et al. (US 6,751,200) in view of Langberg et al. (US 5,852,630).

(1) with regard to claim 21:

Larsson et al. discloses all of the subject matter as discussed in the rejection of claim 1. Larsson et al. however does not teach using a computer program embodied on a memory for performing the method of claim 1.

Langberg et al. teaches a method for a transceiver warm start activation

procedure can be implemented in software stored in a computer-readable medium. The

computer-readable medium is an electronic, magnetic, optical, or other physical device

or means that can contain or store a computer program for use by or in connection with

a computer-related system or method (column 3, lines 51-65). Using a computer

readable medium with program instruction code would be desirable because it would

perform the same function of using hardware but offer the advantage of less expense,

adaptability and flexibility. Therefore, it would have been obvious to one of ordinary skill

in the art at the time the invention was made to include the limitation as taught by

Langberg et al. into the system of Larsson et al. so as to reduce cost and improve the

adaptability and flexibility of the logic simulation.

Response to Arguments

9.   Applicant's arguments with respect to claims 1, 20, 22, 23, 29 and 31 have been

considered but are moot in view of the new ground(s) of rejection.

Regarding claims 17 and 18, Applicant argues that Isumi does not teach the

limitation of releasing a communication link after a predetermined period of inactivity.

The Examiner respectfully disagrees. Isumi suggests (column13, line 64 - column 14,

line 3) that to release a channel if no messages are sent within a predetermined period

of time. This predetermined period of time is the predetermined period of inactivity.

Further more, Applicant argues that there is no suggestion that the communication

channel management unit 20 would operate with a "piconet establishment procedure".

The Examiner respectfully disagrees. Isumi's suggestion of releasing a communication channel after a predetermined period of time would help improve system resource utilization in the system of Larsson.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bo Hui A. Zhu whose telephone number is (571)270-1086. The examiner can normally be reached on Mon-Thur 10am-6pm.
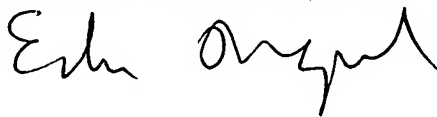
If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on (571)272-3088. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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BZ
Examiner
December 11, 2007

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SUPERVISORY PATENT EXAMINER